

A REVISION OF *THAUMASIOCHAETA* STEIN AND ALLIED GENERA
(DIPTERA: MUSCIDAE: COENOSIINAE: LIMNOPHORINI)

MÁRCIA SOUTO COURI

Museu Nacional, Quinta da Boa Vista, São Cristóvão, 20940-040, Rio de Janeiro, Rio de Janeiro, Brazil (e-mail: mcouri@ibm.net)

Abstract.—*Thaumasiochaeta*, *Mesochaeta*, *Teleutochaeta* and *Rhyncholimnophora* were described by Stein, respectively with one, two, one and three species. Few references to these taxa have been made in the literature since the original descriptions. Examination of the types showed that all the species could be considered as congeneric and are treated so in this paper. The characters originally used to distinguish them are mainly those of the male sex. *Thaumasiochaeta* is considered to be the senior synonym. The following **new combinations** are proposed: *T. compressitarsis*, *T. haustellata*, *T. incaica*, *T. longipalpis*, *T. nigriceps* and *T. variegata*. The genus and all the species are redescribed, with illustrations. A key to species is provided.

Resumo.—*Thaumasiochaeta*, *Mesochaeta*, *Teleutochaeta* e *Rhyncholimnophora* foram descritos por Stein, respectivamente para uma, duas, e três espécies. Desde a descrição original, poucas referências a estes taxa foram feitas na literatura. O exame dos tipos mostrou que todas as espécies podem ser consideradas como congênicas e são tratadas como tal neste artigo. Os caracteres originalmente utilizados para distinguí-las são, principalmente, do sexo masculino. *Thaumasiochaeta* é considerado como sinônimo senior. As seguintes **novas combinações** são propostas: *T. compressitarsis*, *T. haustellata*, *T. incaica*, *T. longipalpis*, *T. nigriceps* e *T. variegata*. O gênero e todas as espécies são redescritas, com ilustrações. Uma chave para identificação das espécies é fornecida.

Key Words: *Thaumasiochaeta*, Diptera, Muscidae

A large number of new Diptera species were described by Stein (1911) based on material collected by Schnuse in South America (Chile, Peru, and Bolivia), including specimens from 4,000 m. altitude. According to Stein (1911) some flies, especially the ones from higher altitudes, were of extraordinary beauty, with remarkable structures and bristles on some parts of the body. Stein (1911) also stated that few new genera were described, as he preferred to assign the new species to known genera (e.g., the large number of species described in *Limnophora* and *Coenosia*). The descrip-

tion of new genera was restricted to some material collected around Lake Titicaca (country), in which males sex had some striking modifications. Among these new genera were: *Thaumasiochaeta* (*T. pilitarsis*), *Mesochaeta* (*M. variegata* and *M. incaica*), *Teleutochaeta* (*T. nigriceps*) and *Rhyncholimnophora* (*R. compressitarsis*, *R. haustellata* and *R. longipalpis*). The original descriptions of all four genera mentioned the morphological similarity among them, and the characters used to diagnose them were mainly confined to the male sex. Since the original descriptions these taxa

have been listed in catalogues but otherwise have received only incidental mention. No further species have been described.

Thaumasiochaeta was diagnosed by the presence in the male of a filiform appendix to the arista that ends in a triangular expansion, and *Mesochaeta* by the presence in the male of a very long bristle on apical third of dorsal surface of fore tibia, ending in a triangular expansion. The other two genera, *Teleutochaeta* and *Rhyncholimnophora*, were compared with these genera as they were very similar to them. *Teleutochaeta* was distinguished by the narrow orbits at the base of the antenna, the labrum conspicuously projecting, the modified bristle on the fore tibia placed near apex, and the absence of wing-clouds. *Rhyncholimnophora* was differentiated from *Thaumasiochaeta* by having a simple arista and from the other two by the absence of the modified bristle on the dorsal surface of the fore tibia.

Subsequent authors treated these taxa differently. Séguy (1937) considered *Rhyncholimnophora* and *Thaumasiochaeta* as good genera, differing from one another by the extent of the epistomal projection. *Mesochaeta* and *Teleuchaeta* were considered synonyms of *Thaumasiochaeta*. Pont (1972) considered *Thaumasiochaeta* and *Rhyncholimnophora* to be good genera, and *Mesochaeta* a synonym of *Teleutochaeta*.

The most recent catalogue of Neotropical Muscidae (Carvalho et al. 1993) followed Pont (1972), but no types or other material were examined. The genus was assigned to the Coenosiinae, tribe Limnophorini.

The four genera differ from all other Limnophorini by the epistomal projection, the presence of setulae on the anepimeron, meron (below posterior spiracle) and sides of scutellum, the wings with strong spines along costal margin and hind tibia with a median and a suprmedian bristle on posterodorsal surface, and also by the black color and the extra hairs and setulae, which are adaptations commonly found among

high-altitude Muscidae. This set of characters is not found in any other muscid.

This review was prompted by examination of the type material deposited in the Staatliches Museum für Tierkunde (SMT), Dresden, Germany, and in the Zoologisches Museum der Humboldt-Universität (ZMHU), Berlin, Germany. All the species are now considered to belong to the same genus, *Thaumasiochaeta*, which is chosen as the senior synonym. A revised generic description is given. The type-species *Thaumasiochaeta pilitarsis* is fully redescribed and the other species are compared with it. Several new combinations are proposed. Bibliographic references for each species are given by Carvalho et al. (1993), and only the reference to each original description is given here.

Thaumasiochaeta Stein

Thaumasiochaeta Stein 1911: 137.

Type species: *Thaumasiochaeta pilitarsis* Stein, by monotypy.

Mesochaeta Stein 1911: 139 [preocc.].

Type species: *Mesochaeta variegata* Stein, desig by Séguy 1937.

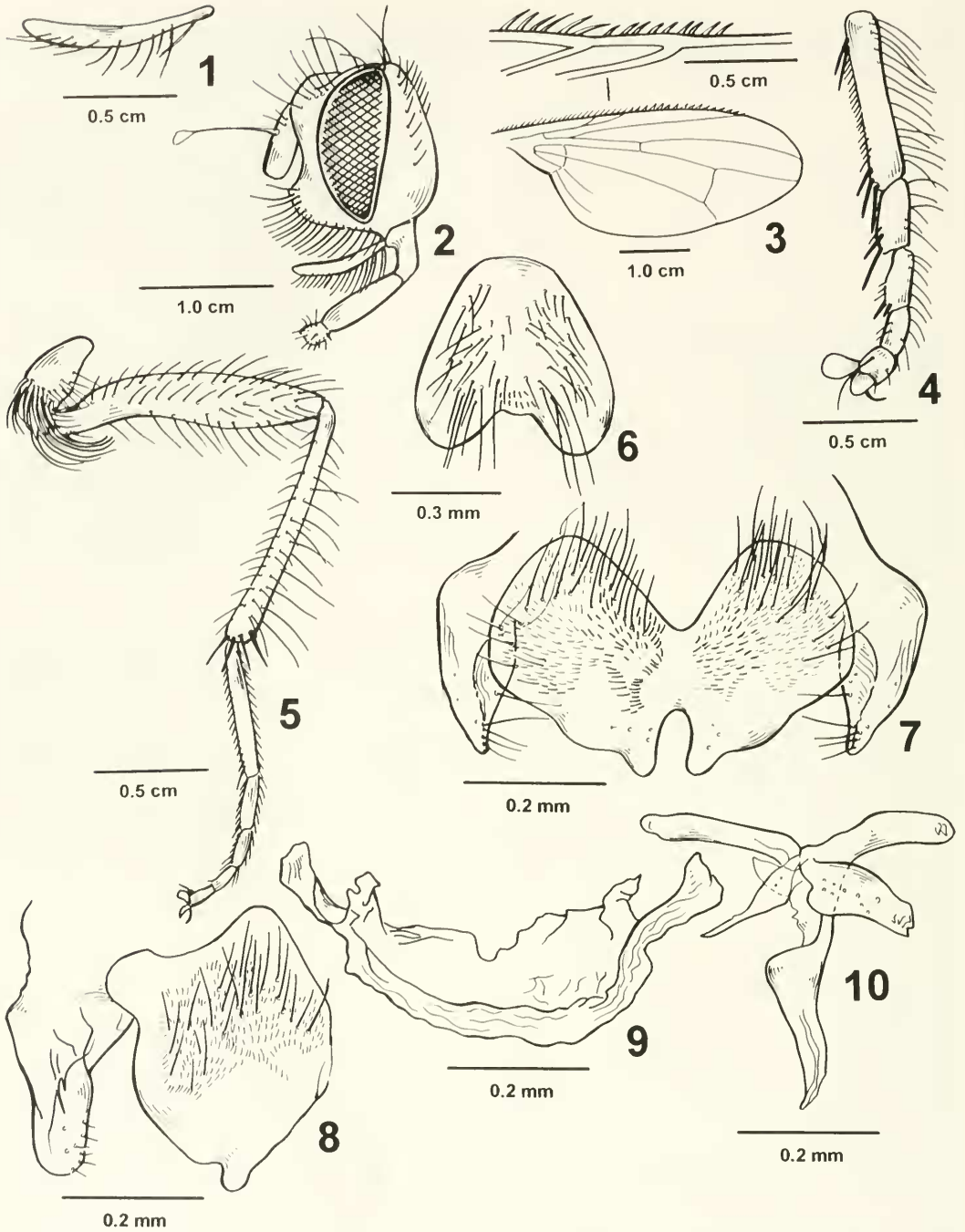
Teleutochaeta Stein 1911: 141.

Type species: *Teleutochaeta nigriceps* Stein, by monotypy.

Rhyncholimnophora Stein 1911: 142. **New synonymy.**

Type species: *Rhyncholimnophora compressitarsis* Stein, desig. by Séguy 1937.

Diagnosis.—Male dichoptic; frons very wide, about ½ of head width; epistomal projection variable: not far projecting in *T. variegata* (Figs. 15, 24), *T. incaica* and *T. pilitarsis* (Fig. 2), and strongly projecting in *T. nigriceps* (Figs. 29, 36) and *T. longipalpis* (Fig. 51). Ocellar triangle with a pair of long bristles near anterior ocelli and about 6 other finer and shorter bristles (only one pair in *T. haustellata* and *T. longipalpis*). Antenna with flagellomere large, arista bare, enlarged at base; palpus long, broad and flattened (Fig. 1). Dorsocentral bristles 2:3; pre-alar bristle absent; scutellum with



Figs. 4-10. *Thaumasiochaeta pilittarsis*. 1, Male palpus. 2, Male head (profile). 3, Male wing. 4, Male hind tarsus, anterior view. 5, Male hind leg, anterior view. 6, Male sternite. 7, Cercal plate and surstyli (dorsal view). 8, Cercal plate and surstyli (lateral view). 9, Hypandrium. 10, Aedeagus (lateral view).

setulae laterally; prostemum setulose; propisternals 2, proepimerals 2; postpronotal lobe with 2 long bristles; notopleuron with 2 long bristles, the anterior a little longer than the posterior; with setulae in addition to the bristles; katapisternum with long and fine cilia on disc; katapisternals 1:1 (1:2 in *T. longipalpis*), the upper posterior one about twice as long as the other; lower calypter about 1.5 the length of upper one; anepimeron setulose, with long and fine setulae; meron with setulae below posterior spiracle; wings with strong spines along costal margin (Fig. 3); stem vein with ventral surface bare (setulose in *T. longipalpis*); R₁ on dorsal surface with cilia in apical fourth (along entire length in *T. longipalpis*); base of R₂₊₃ and R₄₊₅ with setulae on both surfaces. Sternite I setulose. Proboscis with haustellum totally sclerotized, shining (Fig. 11). Hind tibia on posterodorsal, anterodorsal and dorsal surfaces with a preapical bristle. Ovipositor with microtrichia on membrane of segment 7 and spicules on membrane of segment 8 (Figs. 12–13).

Geographical distribution.—Neotropical, the high Andean Cordillera of Peru and Bolivia.

Discussion.—The genus can be distinguished from the other Limnophorini by the epistomal projection and by the presence of setulae on the anepimeron and meron; setulae at sides of scutellum; hind tibia with long median and suprmedian bristles on posterodorsal surface. The black color and the presence of numerous additional hairs and setulae are adaptations for higher altitudes.

KEY TO ADULTS

Males are easy to separate as they have many unique characters such the modifications of the arista, leg chaetotaxy and mid femur curvature. On the other hand, females are very similar and difficult to distinguish.

- 1. Katapisternals 1:1; R₁ on dorsal surface setulose at apex; R₄₊₅ with setulae only at base 2
- Katapisternals 1:2; R₁ on dorsal surface setu-

- lose along entire length; R₄₊₅ with cilia extending as far as r-m *T. longipalpis* (Stein)
- 2. Ocellar triangle with six or more bristles in addition to the ocellar pair; male with or without a depression on basal third of hind femur 3
- Ocellar triangle with no bristles, apart from the single pair; male without a depression on basal third of hind femur *T. haustellata* (Stein)
- 3. Epistoma not strongly projecting (Figs. 2, 15, 40); lower calypter with margin whitish or brown; male without a preapical bristle with a triangular apex on dorsal surface of fore tibia 4
- Epistoma strongly projecting (Figs. 29, 36); lower calypter with margin brown; male with a preapical bristle with triangular apex on dorsal surface of fore tibia *T. nigriceps* (Stein)
- 4. Lower calypter with whitish margin; male with arista not triangular at apex 5
- Lower calypter with brown margin; male with arista triangular at apex *T. pilitarsis* (Stein)
- 5. Wings clouded as in Fig. 14; male with fore tibia on dorsal surface with a median bristle with triangular apex *T. variegata* (Stein)
- Wings clouded or hyaline; male without a very long median bristle with triangular apex on dorsal surface of fore tibia 6
- 6. Wings hyaline *T. compressitarsis* (Stein)
- Wings clouded as in Fig. 28 *T. incaica* (Stein)

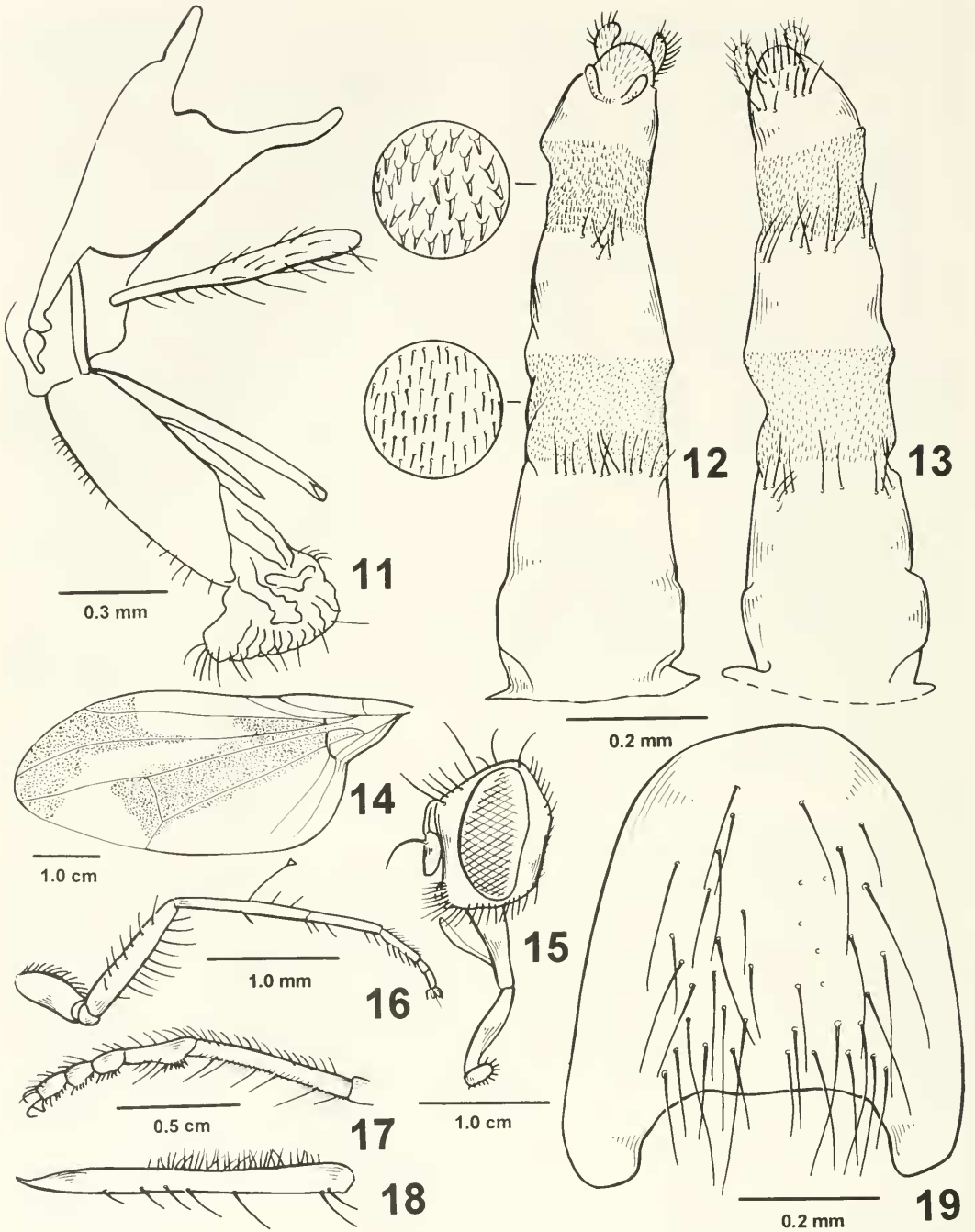
Thaumasiochaeta pilitarsis Stein
(Figs. 1–13)

Thaumasiochaeta pilitarsis Stein 1911: 138.

Diagnosis.—Lower calypter with brown margin; wing yellowish. Male with arista triangular at apex (Fig. 2). Fore tarsomere I on anterodorsal, dorsal and posterodorsal surfaces with a complete row of long bristles; ventral surface with strong bristles at base and apex and some short bristles on middle. Fore tarsomere II on ventral surface with 3–4 long and strong apical bristles, the most apical one the strongest. Fore tarsomere III on ventral surface with 2–3 strong apical bristles (Fig. 4). Hind leg (Fig. 5) with coxa and trochanter with a tuft of bristles; femur on ventral surface curved in basal half.

Male.—Length: body: 5.0–5.5 mm; wing: 4.8–5.0 mm.

Color: Frons and fronto-orbital plates dark brown, strongly silvery pollinose on basal third near lunule. Face, parafacial and



Figs. 11-19. 11-13. *Thaumasiochaeta pilitarsis*. 11, Female proboscis. 12, Ovipositor (dorsal view). 13, Ovipositor (ventral view). 14-19. *T. variegata*. 14, Male wing. 15, Male head (profile). 16, Male fore leg, anterior view. 17, Male fore tarsus, anterior view. 18, Male hind tibia, anterior view. 19, Male sternite 5.

gena brown, parafacial also strongly silvery pollinose. Antenna dark brown. Arista and palpus brown. Calypter whitish, lower one with brown margin. Wing yellowish. Haltere yellow at base and brown on apical two-thirds. Legs dark brown. Abdomen bluish-grey pollinose dorsally from certain angles.

Head: Eyes bare; at level of anterior ocellus separated by 0.38–0.40 of head width. Inner and outer vertical bristles long, the latter one directed outwards. Frontal row with 6–7 pairs of long bristles, the upper two directed outwards. Antenna with flagellum 1.3–1.5 times as long as pedicel.

Thorax: Acrostichal hairs distinct, irregular throughout. Presuturals 1; supraalar 1; post-supraalar 2. Scutellum with a pair of lateral bristles at middle and an apical pair, both long. Fore femur on anterior, dorsal, anterodorsal, ventral and anteroventral surfaces with complete rows of bristles. Fore tibia on anterodorsal surface with a row of bristles on apical half; dorsal and posterodorsal surfaces with complete rows of long and fine bristles; dorsal, posterodorsal and posterior surfaces with an apical bristle. Fore tarsomere I on anterodorsal, dorsal and posterodorsal surfaces with complete rows of long bristles, ventral surface with strong bristles at base and apex and some short bristles at middle; tarsomere II on ventral surface with 3–4 long and strong apical bristles, the most apical one the strongest; tarsomere III on ventral surface with 2–3 strong apical bristles (Fig. 4). Mid coxa on anterior surface with strong and long bristles. Mid femur on anterior, anterodorsal and anteroventral surfaces with long bristles. Mid tibia on all surface with long and fine bristles; anterodorsal surface with 3–4 bristles on middle third, anteroventral surface with 2–3 bristles on middle third; dorsal surface with a preapical bristle; posterior, posterodorsal, anterodorsal and anterior surfaces with an apical bristle. Mid tarsomere I on ventral surface with a row of bristles, the apical one the strongest. Hind leg (Fig. 5) with coxa and trochanter with

a tuft of bristles. Hind femur on ventral surface with curved in basal half; anterior, anterodorsal, anteroventral, dorsal and ventral surfaces with long bristles. Hind tibia on anteroventral and anterodorsal surfaces with long bristles, dorsal surface with a preapical bristle; anterodorsal, anteroventral and ventral surfaces with an apical bristle.

Abdomen: Tergite 5 with two discal rows of bristles and one marginal. Sternite 5 with lateral bristles; no bristles on longitudinal middle third longitudinally (Fig. 6).

Terminalia: Cercal plate wider than long (Figs. 7, 8); hypandrium large (Fig. 9); distiphallus long, enlarged at base (Fig. 10).

Female.—Length: body: 6.0–6.3 mm; wing: 5.5–6.0 mm.

Differs from male as follows: frons, fronto-orbital plates, parafacial and gena lighter, with weak pollinosity. Abdomen less pollinose. Arista with apex not modified. Leg chaetotaxy less numerous, tarsal bristles fine. Mid tibia on anteroventral surface with 3–4 bristles in apical half, anterodorsal surface with a row of bristles, posterior surface with a row of bristles on apical 2/3. Tuft on hind coxa and trochanter weak, with few bristles. Hind femur not modified.

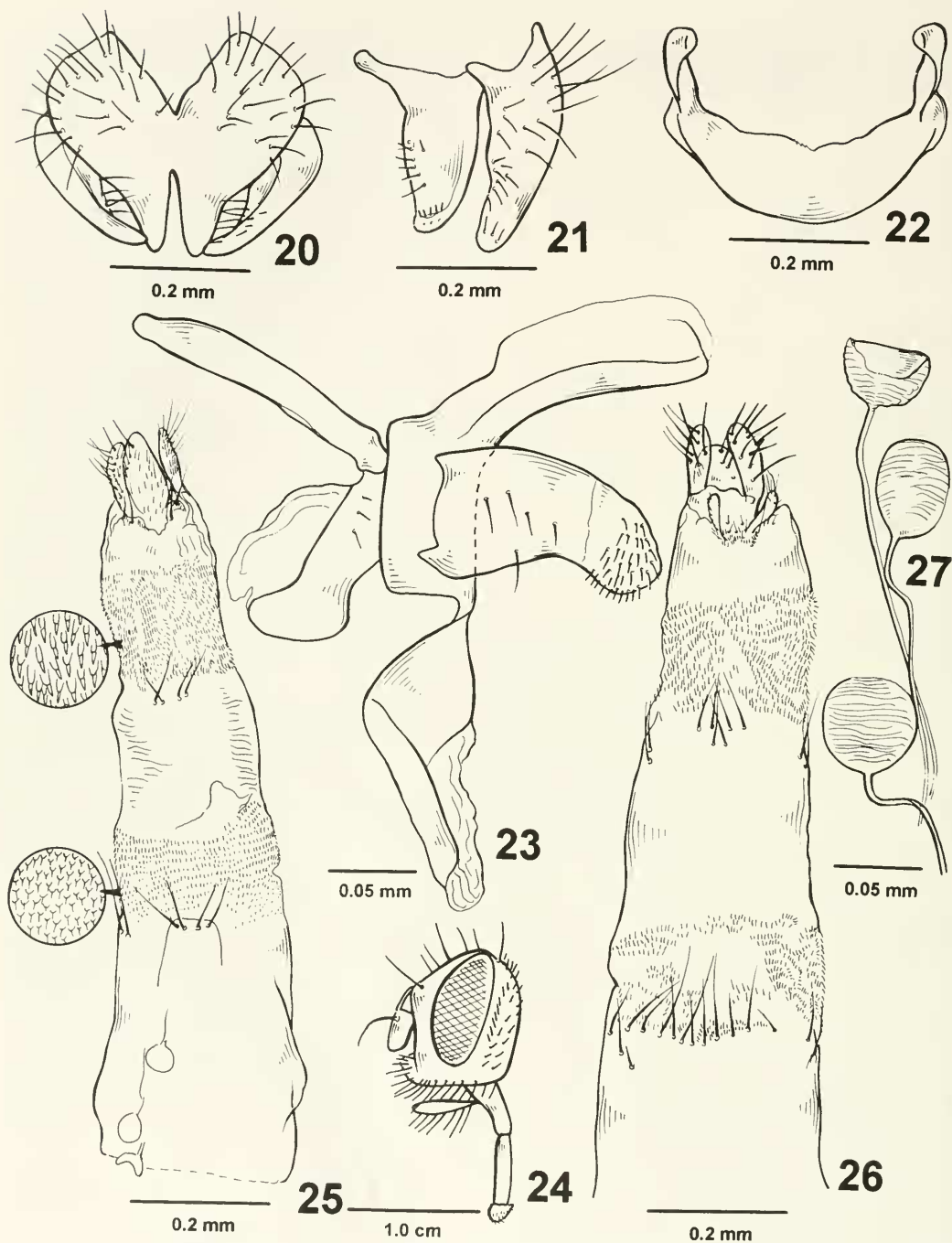
Terminalia: Cerci longer than epiproct, both with microtrichia. Hypoproct without microtrichia (Figs. 12, 13).

Material examined.—Stein (1911) described this species from 6 pairs from Peru (Puno) and Bolivia (Tiahuanaco). Four ♂ and 5 ♀ syntypes have been studied as follows: PERU, Puno, 17.xi.02 (Schnuse), 3 ♂ and 1 ♀ (SMT); 20.xi.02 1 ♀ (SMT); 21.xi.02 1 ♀, 1 ♂ (SMT); BOLIVIA, Tiahuanaco, 30.v.03 1 ♀ (SMT); 19.xi.02, 1 ♀ (ZMHU).

Thaumasiochaeta variegata (Stein),
new combination
(Figs. 14–27)

Teleutochaeta variegata Stein 1911: 139.

Diagnosis.—Both calypters whitish; wing clouded (Fig. 14). Fore tibia on anteroventral surface with a short median



Figs. 20-27. *Thaumasiochaeta variegata*. 20. Cercal plate and surstyli (dorsal view). 21. Cercal plate and surstyli (lateral view). 22. Hypandrium. 23. Aedeagus (lateral view). 24. Female head (profile). 25. Ovipositor (dorsal view). 26. Ovipositor (ventral view). 27. Spermatheca.

bristle; dorsal surface with a median bristle with triangular apex; anterodorsal surface with 2–3 bristles on apical third. Fore tarsomere I on ventral surface with a spine at base and with about 5 bristles; tarsomeres II–V on ventral surface with a tuft of short bristles at middle followed by long bristles (Fig. 17). Hind femur not curved in basal third.

Differs from *T. pilitarsis* as follows:

Male.—Length: body: 4.0–4.2 mm; wing: 3.0–3.3 mm.

Color: Parafacial and gena densely golden pollinose. Haltere with stalk yellow and knob brown. Both calypters whitish. Wing clouded, as in Fig. 14.

Head (Fig. 15): Eyes at level of anterior ocellus separated by 0.45–0.48 of head width. Apex of arista not modified.

Thorax: Fore leg as in Fig. 16. Fore femur on anteroventral and anterodorsal surfaces with complete rows of bristles. Fore tibia on anteroventral surface with a short median bristle; dorsal surface with a median bristle with triangular apex; anterodorsal surface with 2–3 bristles on apical third. Fore tarsomere I on ventral surface with a spine at base and about 5 bristles; tarsomeres II–V on ventral surface with a tuft of short bristles at middle followed by long bristles (Fig. 17). Mid femur on ventral surface with fine bristles on middle third. Mid tibia on anterodorsal surface with 3–6 bristles on middle third; posterodorsal surface with 2–4 bristles inserted on middle third and a preapical bristle; dorsal surface with a long bristle on apical third; posterior, anteroventral, ventral, posteroventral and posterior surfaces with a preapical bristle. Mid tarsomeres not modified as on fore leg. Hind femur not curved in basal third; posterodorsal and posteroventral surfaces with 2–3 bristles in apical third. Hind tibia (Fig. 18) on anterior to anterodorsal surfaces with 4–5 bristles; anterodorsal and posterodorsal surfaces with a preapical bristle; ventral surface with short cilia on approximately basal two-thirds. Hind tarsi as on mid leg.

Abdomen: Lateral bristles on all tergites. Sternite 5 longer than wide (Fig. 19).

Terminalia: Cercal plate with anterior incision deep; surstyli broad (Figs. 20, 21). Hypandrium large (Fig. 22). Distiphallus larger at base, paramere with sensillae at apex (Fig. 23).

Female.—Length: body: 3.5–3.6 mm; wing: 3.0–3.2 mm.

Differs from male as follows: parafacial grey pollinose. All colors weaker than in male. Face more projecting (Fig. 24). Fore tibia on dorsal surface with a row of 4–5 bristles none with triangular apex; bristles on tarsi not modified. Hind tibia on anteroventral surface with 3 bristles on apical third.

Terminalia: Sternite 8 with two bristles on each half, cerci and epiproct with microtrichia (Figs. 20–21). 3 spermathecae, one round and two oval (Fig. 22).

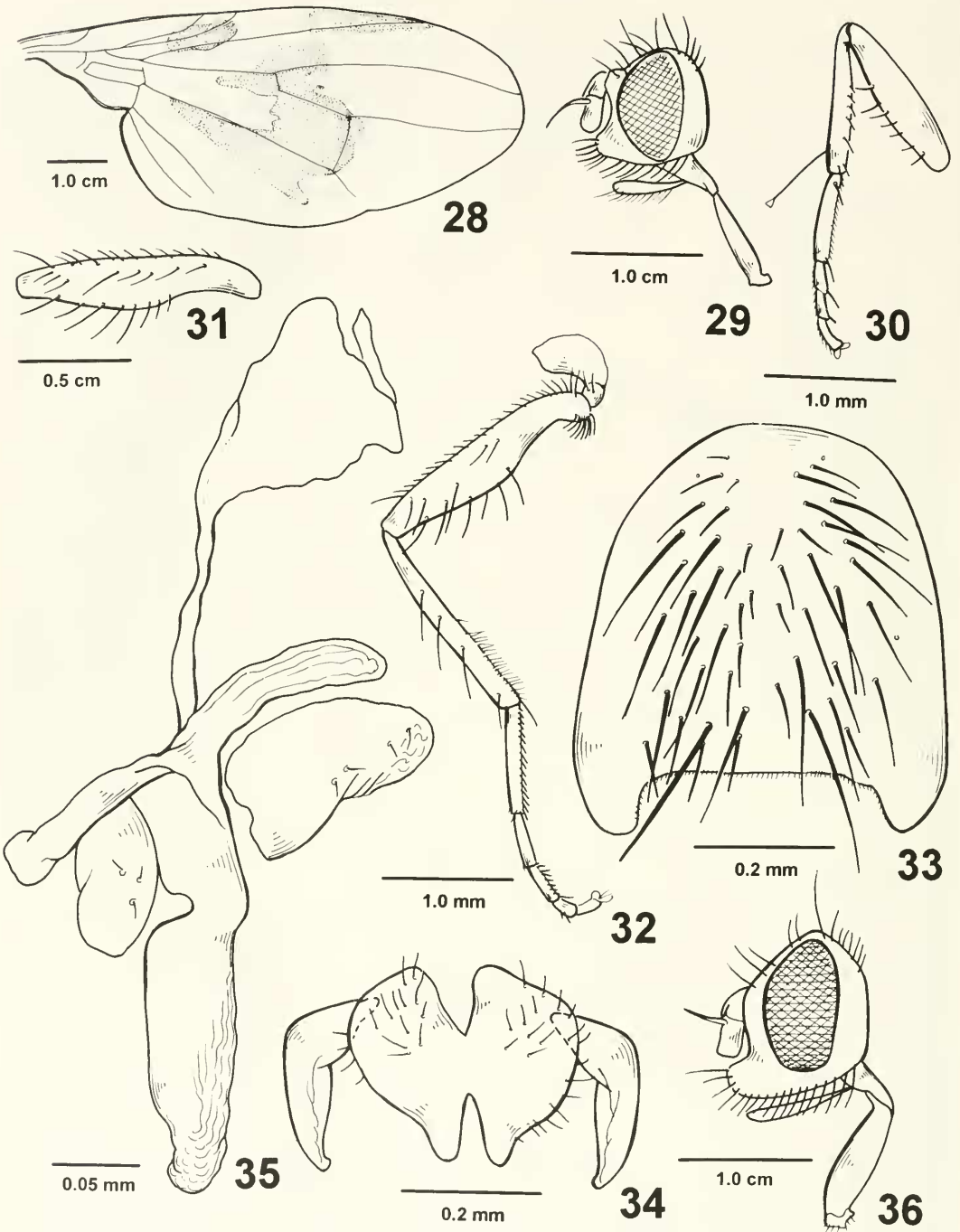
Material examined.—Stein (1911) described this species from 7 ♂ and 8 ♀ from Peru (Puno and Oroya) and Bolivia (Lake Titicaca). 5 ♂ and 3 ♀ syntypes have been studied as follows: PERU, Puno, 23.xi.02, 2 ♂ (SMT); 16.xi.02 3 ♂ and 1 ♀ (Schnuse) (SMT); Oroya, 21.i.04 1 ♀ (SMT). BOLIVIA, Titicaca, 30.v.03 (Schnuse) 1 ♀ (SMT).

Thaumasiochaeta incaica (Stein),
new combination
(Figs. 28–29)

Teleutochaeta incaica Stein 1911: 140.

I have only examined one female, which is very similar to *T. variegata*, except for the wing color (Fig. 28). Stein (1911) separated the male of this species from male of *T. variegata* by: fore tarsus not modified; hind femur enlarged at middle of internal surface and with short ciliae.

Material examined.—The original series contained 2 ♂ and 5 ♀ from Bolivia (Titicaca). 1 ♀ syntype has been studied as follows: BOLIVIA, Titicaca, 11.vi.03 1 ♀ (ZMHU).



Figs. 28–36. 28, *Thaumasiochaeta incaica*. Female wing. 29–36, *T. nigriceps*. 29, Male head (profile). 30, Male fore leg, anterior view. 31, Male hind femur, anterior view. 32, Male hind leg, anterior view. 33, Male sternite 5, anterior view. 34, Cercal plate and surstyli (dorsal view). 35, Cercal plate and surstyli (lateral view). 36, Female head (profile).

Thaumasiochaeta nigriceps (Stein),
new combination

(Figs. 29–39)

Thaumasiochaeta nigriceps Stein 1911:
 141.

Diagnosis.—Epistoma very projecting. Fore tibia on anteroventral surface with a median bristle; posterodorsal surface with 2 bristles on middle third; dorsal surface with a modified preapical bristle, triangular at apex. Hind tibia on anterodorsal surface with 3 bristles on middle third; posterior surface with 2 bristles on middle third; dorsal surface with a preapical bristle; ventral surface with an apical bristle; ventral surface with cilia on apical third.

Differs from *T. pilitarsis* as follows:

Male.—Length: body: 5.0–5.2 mm; wing: 5.0–5.2 mm.

Color: Parafacial a little golden from certain angles. Both calypters hyaline, border of lower one brown. Legs brown.

Head: Eyes at level of anterior ocellus separated by 0.36 of head width. Flagellomere 1.25 times as long as pedicel (Fig. 29).

Thorax: Fore leg (Fig. 30) with femur on anterodorsal surface with a complete row of bristles; anteroventral surface with a row of bristles on apical half; anterior surface with sparse bristles. Fore tibia on anteroventral surface with a median bristle; posterodorsal surface with 2 bristles on middle third; dorsal surface with a modified preapical bristle, triangular at apex; anterodorsal surface with a short preapical bristle inserted at the same level as the dorsal modified bristle; anterior surface with a supra-median bristle and a preapical one, both short and fine. Fore tarsi on ventral surface with short and strong bristles on tarsomeres I, II and III. Mid femur on anterior surface with a row of short bristles on apical two-thirds; anteroventral surface with a median bristle and a row of bristles on apical third; posteroventral surface with 2 preapical bristles. Mid tibia on anteroventral surface with a median and a sub-

median bristle, the latter one longer; posteroventral surface with a submedian bristle; dorsal surface with 3 bristles on middle third; posterior surface with 2 bristles on middle third; anterodorsal surface with a preapical bristle; anterodorsal, anteroventral, posterodorsal and ventral surfaces with an apical bristle, the latter the longest. Hind femur (Fig. 31) on anterodorsal surface with a depression on apical third; anteroventral surface with 2–3 apical bristles. Hind tibia on anterodorsal surface with 3 bristles on apical third, the median one short; posterior surface with 2 bristles on middle third; dorsal surface with a preapical bristle; anteroventral surface with an apical bristle; ventral surface with ciliae on apical third (Fig. 32)

Abdomen: Tergite 5 with a marginal and a discal row of bristles. Stemite 5 with posterior membrane straight (Fig. 33).

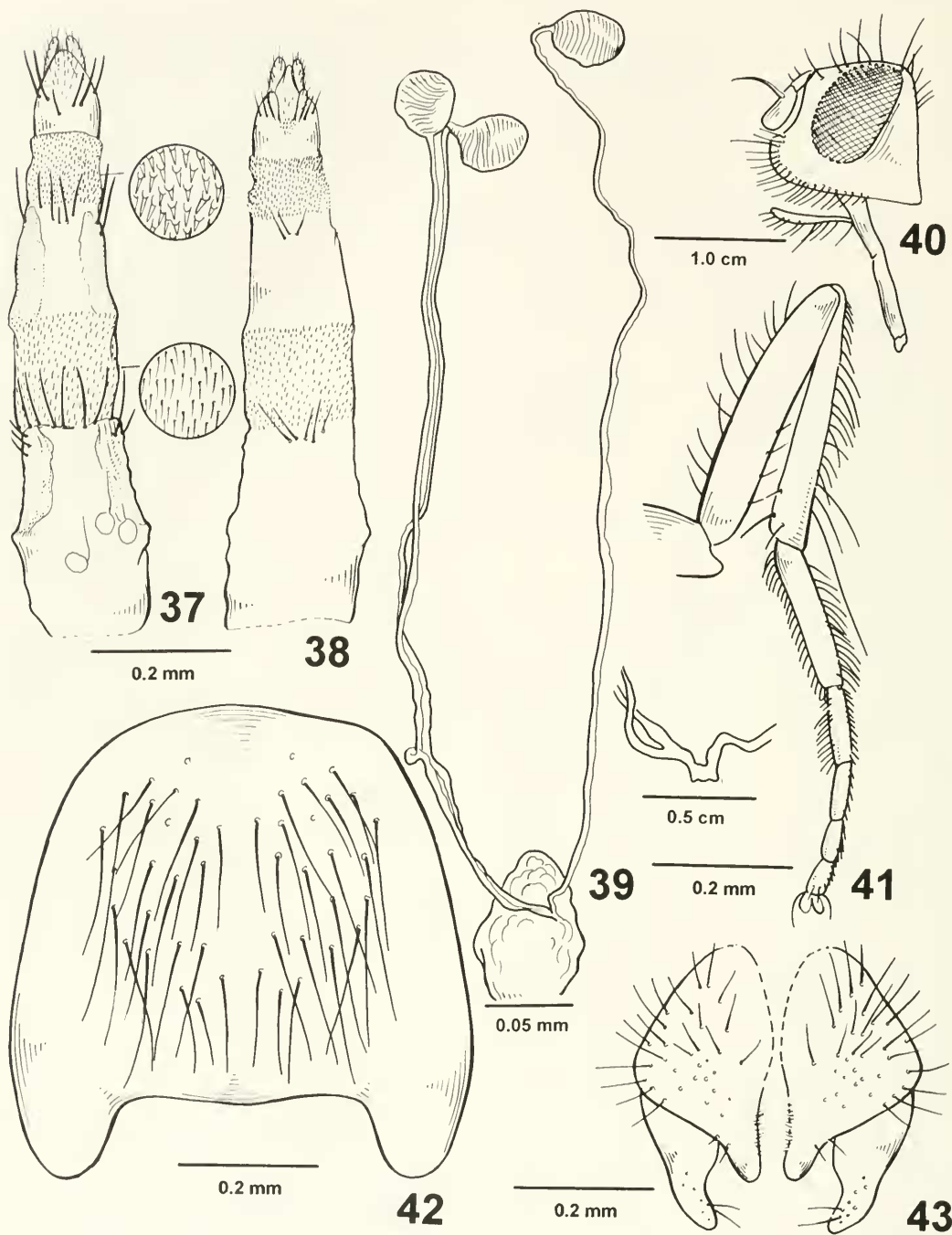
Terminalia: Cercal plate as long as broad, with a sharp incision on posterior side (Figs. 34–35); phallapodeme short, distiphallus long and cylindrical (Fig. 35).

Female.—Length: body: 4.8–5.1 mm; wing: 4.5–4.6 mm.

Differs from male as follows: parafacial grey pollinose. Border of lower calypter hyaline. Abdomen with blue pollinosity very faint. Head as in Fig. 36. Eyes at level of anterior ocellus separated by 0.40 of head width. Fore femur on anterior and anteroventral surfaces with complete rows of bristles. Mid tibia on dorsal surface with one preapical bristle, with apex not modified. Hind femur not modified.

Terminalia: Ovipositor as in Figs. 37 and 38. Spermathecae oval, with long ducts (Fig. 39).

Material examined.—Stein (1911) described this species from 4 pairs from Peru (Oroya). 4 ♂ and 3 ♀ syntypes have been studied as follows (all material listed in the original description is said to be from 21.i.04): PERU, Oroya, 21.i.04 4 ♂ (SMT); 30.v.04 1 ♀ (SMT); 22.i.04, 2 ♀ (SMT).



Figs. 37-43. 37-39. *Thaumasiochaeta nigriceps*. 37, Ovipositor (dorsal view). 38, Ovipositor (ventral view). 39, Spermatheca. 40-43. *T. compressitarsis*. 40, Male head (profile). 41, Male hind leg, anterior view. 42, Male sternite 5. 43, Cercal plate and surstyli (dorsal view).

Thaumasiochaeta compressitarsis (Stein),
new combination
 (Figs. 40–46)

Rhyncholimnophora compressitarsis Stein
 1911: 142.

Diagnosis.—Male with fore tibia with bristles on anterodorsal, anterior and posterodorsal surfaces, dorsal surface with a long bristle near apex.

Differs from *T. pilitarsis* as follows:

Male—Body length: 3.5 mm; wing: 4.0 mm.

Color: Calypter whitish. Haltere with stalk yellow and knob yellowish brown.

Head: As in Fig. 40. Eyes at level of anterior ocellus separated by 0.30 of head width. Antenna with flagellomere 1.7 as long as pedicel.

Thorax: Fore leg as in Fig. 41. Fore femur on anterodorsal, anterior and anteroventral surfaces with complete rows of bristles; on anteroventral, ventral and posteroventral surfaces with strong bristles on apical half, forming a distinct group of bristles. Fore tibia with bristles on anterodorsal, anterior and posterodorsal surfaces, dorsal surface with a long bristle near apex. Fore tarsomere I on anterodorsal and posterodorsal surfaces with short strong bristles at apex. Mid femur on anterior surface with a row of bristles on basal half, posteroventral surface with a row of bristles on apical half. Mid tibia on anterior surface with 2 bristles on middle third, posterodorsal surface with a row of bristles on basal half; anteroventral surface with 4 short strong bristles on middle third; all surfaces with an apical bristle, those on anteroventral and anterodorsal surfaces longer. Hind femur curved in basal half; dorsal, anterodorsal, anterior and anteroventral surfaces with long, fine and sparse bristles on apical half. Hind tibia on anterior surface with 2 bristles on middle third; anterodorsal surface with a short preapical bristle; ventral surface with a strong apical bristle.

Abdomen: Tergite 3 with a pair of lateral marginal bristles, tergite 4 with a distinct

marginal row of bristles and tergite 5 with a discal row of bristles. Sternite 5 longer than wide (Fig. 42).

Terminalia: Cercal plate with a deep posterior incision (Fig. 43); paramere with many sensillae at apex (Fig. 44).

Female.—Body length: 3.5 mm. Wing length: 3.0 mm.

Differs from male as follows: all bristles less strong than in male. Fore femur without the differentiated bristles on apical half of anteroventral, ventral and posteroventral surfaces. Fore tibia without the 2 long bristles at apex of dorsal surface. Mid tibia on anteroventral surface with 2 bristles on middle third; anterodorsal surface with 4 bristles on middle third; posteroventral surface with 2–3 bristles on middle third, posterior surface with 2 bristles on middle third. Hind femur not modified. Hind tibia on anteroventral surface with about 3–4 bristles on apical two-thirds, anterodorsal surface with 3–4 bristles on basal half. Hind tarsomere I without bristles at apex of anterodorsal and posterodorsal surfaces.

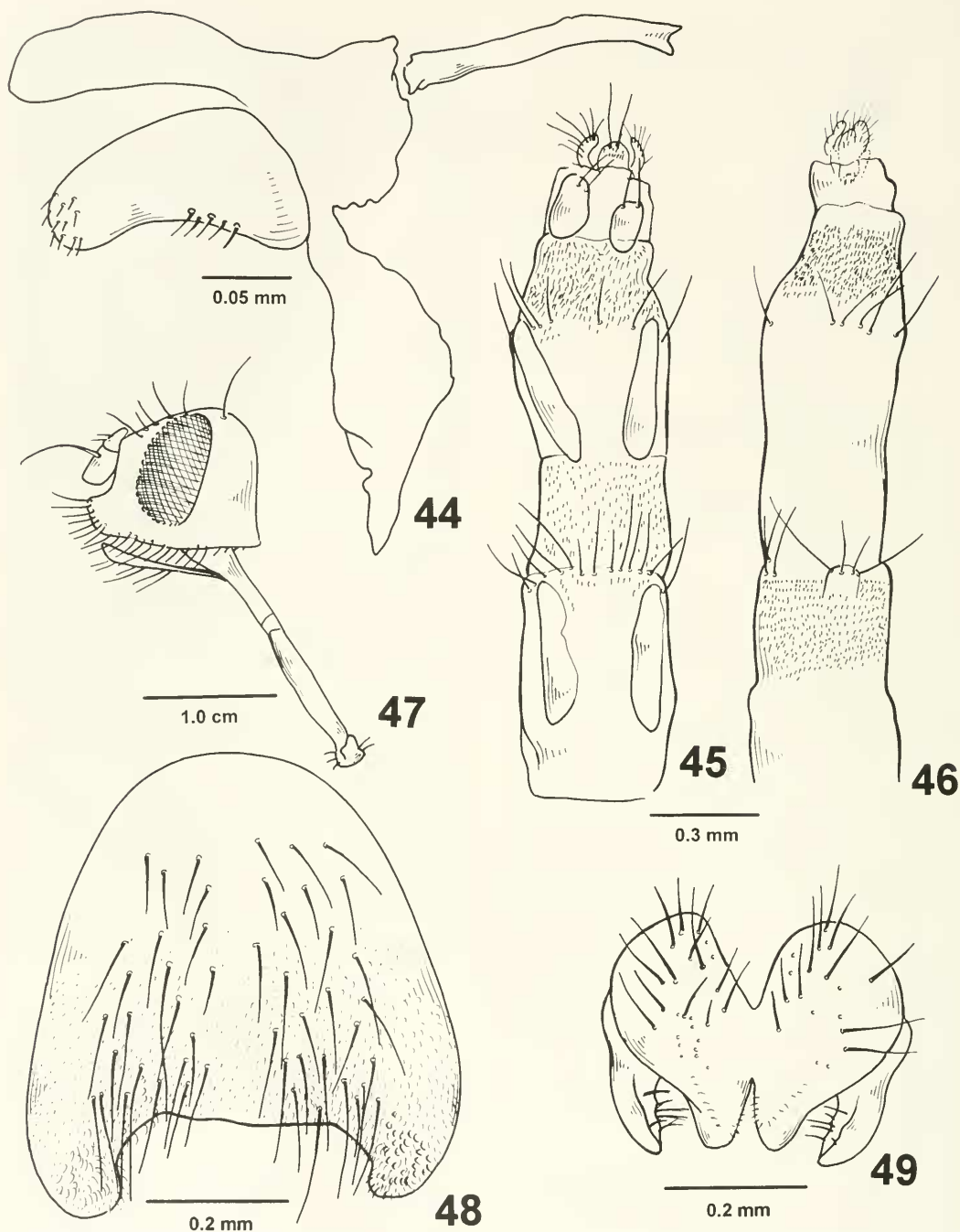
Terminalia: Ovipositor with cerci long, reaching beyond hypoproct (Figs. 45–46).

Material examined.—Stein (1911) described this species from only 4 ♂ and 3 ♀ from Peru (Vale de la Laris). 3 ♂ and 3 ♀ syntypes have been studied as follows: PERU, Laristhal, 8.viii.03, 1 ♂ (ZMHU); (Schnuse) 2 ♂ and 3 ♀ (SMT).

Thaumasiochaeta haustellata (Stein),
new combination
 (Figs. 47–50)

Rhyncholimnophora haustellata Stein
 1911: 143.

Diagnosis.—Epistoma strongly projecting (Fig. 47). Ocellar triangle with only one pair of bristles. Calypter whitish. Hind femur on anteroventral, anterodorsal and anterior surfaces with sparse bristles. Hind tibia on anterodorsal and posterodorsal surfaces with 3 bristles on middle third, at the same level; anteroventral surface with 2 bristles on middle third; dorsal surface with



Figs. 44-49. 44-46. *Thaumasiochaeta compressitarsis*. 44, aedeagus (lateral view). 45, Ovipositor (dorsal view). 46, Ovipositor (ventral view). 47-49. *T. haustellata*. 47, Male head (profile). 48, Male sternite 5. 49, Cercal plate and surstyli (dorsal view).

a preapical bristle; anteroventral and ventral surfaces with an apical bristle.

Differs from *T. pilitarsis* as follows:

Male.—Length: body: 4.5 mm; wing: 4.2 mm.

Color: Calypter whitish. Fronto-orbital plates strongly grey pollinose from certain angles.

Head: Gena strongly projecting (Fig. 47). Ocellar triangle with only one pair of bristles.

Thorax: Fore femur on anterior, anteroventral and posterodorsal surfaces with complete rows of bristles. Fore tibia on dorsal surface with a preapical bristle; anteroventral, ventral and posteroventral surfaces with an apical bristle. Tarsi without differentiated bristles. Mid femur on posteroventral surface with sparse bristles on basal half. Mid tibia on anterodorsal surface with a long median bristle, 2 shorter ones on middle third, anteroventral surface with a short median bristle, posterior surface with 2 bristles on middle third; anterior, anterodorsal, posterodorsal, ventral and posteroventral surfaces with an apical bristle. Hind femur on anteroventral, anterodorsal and anterior surfaces with sparse bristles. Hind tibia on anterodorsal and posterodorsal surfaces with 3 bristles in middle third, at the same level; anteroventral surface with 2 bristles on middle third; dorsal surface with a preapical bristle; anteroventral and ventral surfaces with an apical bristle.

Abdomen: Sternite 5 longer than wide (Fig. 48).

Terminalia: Cercal plate and surstyli as in Fig. 49. Aedeagus with paramere broad, with no sensillae at apex (Fig. 50).

Material examined.—The only male from the original series was examined, as follows: PERU, Cuzco, 17.vi.05 1 ♂ (SMT).

Thaumasiochaeta longipalpis (Stein),
new combination
(Figs. 51–55)

Rhyncholimmnophora longipalpis Stein
1911: 143.

Diagnosis.—Epistoma very strongly projecting (Fig. 51). Ocellar triangle with only one pair of bristles. R_{4+5} on dorsal surface with setulae from base to r-m.

Differs from *T. pilitarsis* as follows:

Male.—Length: body: 5.3–5.6 mm; wing: 4.8–5.0 mm

Color: Male dark brown, female with fronto-orbital plates and gena silvery pollinose.

Head: Epistoma strongly projecting (Fig. 51). Ocellar triangle with only one pair of bristles.

Thorax: R_{4+5} on dorsal surface with setulae from base to r-m. Fore femur on anterior, anteroventral and anterodorsal surfaces with complete rows of bristles. Fore tibia on anterodorsal surface with one median bristle. Mid femur on posteroventral surface with a row of bristles on apical half. Mid tibia on anterodorsal surface with 3 bristles on middle third, posterior surface with 2 bristles on middle third, ventral surface with a long and strong apical bristle. Hind femur on anterodorsal, dorsal and anteroventral surfaces with complete rows of bristles. Hind tibia on anteroventral surface with 2 bristles on middle third and one preapical bristle, anterodorsal surface with 3 bristles on middle third; posterodorsal surface with a row of bristles on apical third; dorsal surface with a preapical long bristle.

Abdomen: Sternite 5 with many microtrichia on posterior membrane (Fig. 52).

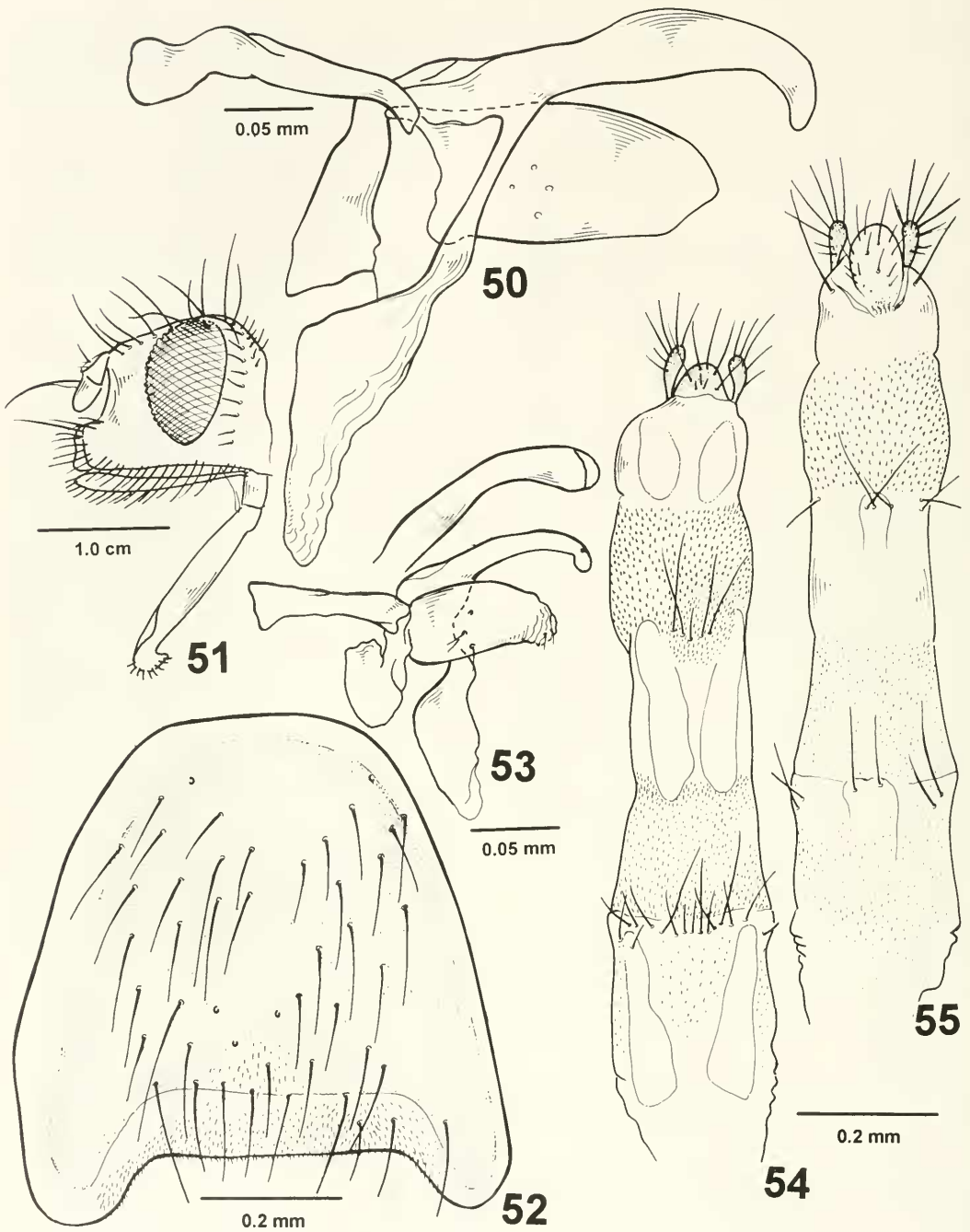
Terminalia: Cercal plate with a deep incision posteriorly; surstyli thinner at middle. Aedeagus with phallapodeme short, apex of paramere with few sensillae (Fig. 53).

Female.—Length: body: 5.2–5.5 mm; wing: 4.8–5.0 mm.

Differs from male as follows:

Terminalia: Ovipositor with microtrichia on all segments, except 7, where there are spicules (Figs. 54–55).

Material examined.—Stein (1911) described this species from 2 ♂ and 5 ♀ from



Figs. 50-55. 50, *Thaumasiochaeta haustellata* Aedeagus (lateral view). 51-55. *T. longipalpis*. 51, Male head (profile). 52, Male sternite 5. 53, Aedeagus (lateral view). 54, Ovipositor (dorsal view). 55, Ovipositor (ventral view).

Peru (Oroya). PERU (Oroya), 22.i.04 1 ♂ (ZMHU), (Schnuse) 1 ♂ and 3 ♀ (SMT).

ACKNOWLEDGMENTS

I am very grateful to Dr. Uwe Kallweit (Staatliches Museum Für Tierkunde, Dresden, Germany), and Dr. H. Schumann (Zoologisches Museum der Humboldt-Universität, Berlin, Germany) for the loan of material; to Dr. Adrian Pont (University Museum of Natural History, Oxford, England) and Dr. Raymond Gagné (Systematic Entomology Laboratory, U. S. Department of Agriculture, Washington, D.C., USA) for valuable suggestions and for revision of the manuscript; and to Luiz Antonio Alves da

Costa (Museu Nacional, Rio de Janeiro, Brazil) for preparing the final drawings.

LITERATURE CITED

- Carvalho, C. J. B.; M. S. Couri, A. C. Pont, D. Pamplona and S. M. Lopes. 1993. Part II. Muscidae, 201 pp. *In* Carvalho, C. J. B., ed., A Catalogue of the Fanniidae and Muscidae (Diptera) of the Neotropical region. São Paulo. Sociedade Brasileira de Entomologia.
- Pont, A. C. 1972. Family Muscidae. *In* A Catalogue of the Diptera of the Americas South of the United States 97, 111 pp. Museu de Zoologia, Universidade de São Paulo.
- Séguy, E. 1937. Diptera, Family Muscidae. *In* Wytsman, P. ed., Genera Insectorum. Fasc. 205: 604 pp. 9 plates.
- Stein, P. 1911. Die von Schnuse in Südamerika gefangenen Anthomyiden. *Archiv für Naturgeschichte*. 77(1): 61-189.